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Affimers–novel tools for biomarker discovery

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Molecular recognition is key to understanding the basics of biological processes and is used globally by scientists to study protein expression and localisation. Antibodies are the tools of choice for molecular recognition, yet their performance, validation and batch-to-batch variation often hinders research and diagnostics. Antibody-mimetic reagents provide alternative tools that address these issues. Antibody-mimetics are protein scaffolds that constrain variable peptide regions that serve as molecular recognition motifs. Here, we will discuss the development of an antibody-mimetic named Affimer and the bioscreening of target proteins, peptides, chemical compounds as well as more complex samples such as cells or biofluids. We have generated a large phage display library up to 2.3x10E10 based on Affimers, proved to be capable in selecting highly specific Affimers against a number of known biomarkers such as toxin A and toxin B of *Clostridium difficile*. Furthermore, we have recently shown the selection of highly specific Affimers to breast cancer cells. We hypothesize that our phage display library can also be used to identify novel biomarkers in biofluids or tissue samples. In my presentation I will give examples of how Affimers can be used in biomarker applications.

Biography

Christian Tiede received his Doctorate in Antibody Engineering and Phage Display from the Charite Berlin. He joined Aptuscan (now Avacta) and set up the phage display technology based on the antibody alternative scaffold Stefin A. In 2011, he moved to the University of Leeds to establish the BioScreening Technology Group under Prof. Mike McPherson and Dr. Darren Tomlinson. He is now the Manager of the group.

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